

A NEW SPECIES OF *EMBLEMARIA*
(PISCES: CLINIDAE: CHAENOPSINAE) FROM THE
SOUTHWESTERN CARIBBEAN WITH COMMENTS
ON TWO OTHER SPECIES OF THE GENUS

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ABSTRACT

The genus *Emblemaria* is one of the best defined in the subfamily Chaenopsinae. It includes several species endemic to the southern Caribbean and adjacent waters, one of which, *E. caycedoi*, is new to science. This species is known from Isla de Providencia (Colombia) and from the Colombian continental Caribbean. It differs from the other Caribbean species of the genus in having a flag-like flap on the anterior edge of dorsal fin and only one row of palatine teeth. It seems to be closely related to *E. hypacanthus*, a more slender species endemic to the Gulf of California. *E. biocellata* is a deep water form known from only three individuals from the coast of the Colombian Guajira to Suriname. *E. diphyodontis* is known only from Isla de Cubagua (Venezuela).

The chaenopsine blennies are a group of small fishes endemic to the tropical seas of the Americas that include eight genera (Acero, in press). In the genus *Emblemaria*, one of the best defined in the subfamily, three interesting species have been collected in the southern Caribbean and the adjacent coast of Central and South America. Two of them (*E. biocellata* and *E. diphyodontis*) are recently described and the third, which has been misidentified with *E. diphyodontis* and *E. pandionis*, is a new species. This paper describes the new species and comments on the status of the other two.

The methods of counting and measuring fin rays and body parts follow those of Stephens (1963; 1970), modified by Johnson and Greenfield (1976). Most measurements were made to 0.01 mm using an ocular micrometer in a Wild M7A microscope. In some cases, as for the fish lengths, measurements were made to 0.1 with needle point dividers. Lengths are given as the standard length (SL) in mm. Other measurements are reported as the percentage of SL. The species is described following the sequence adopted by Johnson and Greenfield (1976). For counting the pores of the cephalic laterosensory system the nomenclature of Smith-Vaniz and Palacio (1974) is followed as modified by Johnson and Greenfield (1976). Abbreviations of institutions where the specimens which were studied are deposited are as follows: INVEMAR-P, Instituto de Investigaciones Marinas de Punta de Betín, Santa Marta, Colombia; LACM, Los Angeles County Museum of Natural History; UDONECI, Universidad de Oriente, Núcleo de Nueva Esparta, Colección Ictiológica, Venezuela; UF, Florida State Museum, University of Florida, Gainesville; UMML, Rosenstiel School of Marine and Atmospheric Science, University of Miami.

Emblemaria Jordan and Gilbert

Emblemaria Jordan and Gilbert, 1883: 627 (type-species: *E. nivipes* Jordan and Gilbert, by monotypy).

Pseudoblennius Jenkins and Evermann, 1888: 156-157 (type-species: *P. hypacanthus* Jenkins and Evermann, by original designation).

Diagnosis.—Head smooth, no rugosity or spines on the cephalic bones. A single

pair of supraorbital cirrus, simple or with a few branches at tip, often very long in males. Dorsal fin high and sail-like in males, low in females, very dimorphic. 18–23 dorsal-fin spines, 13–18 soft dorsal-fin rays, 33–39 total dorsal-fin elements, 2 anal-fin spines, 20–26 soft anal-fin rays, 12–14 pectoral-fin rays. Pelvic fins longer than pectoral fins.

Species Included.—The genus includes 15 species, 5 in the American Pacific and 10 in the Caribbean and adjacent waters. It is apparently absent from Brasil. Six of the western Atlantic species have restricted distributions, *hyltoni* (Honduras), *atlantica* (western North Atlantic), *biocellata* (southern Caribbean and adjacent waters), *culmenis* (Venezuela), *diphyodontis* (Venezuela) and the new species described herewith (southwestern Caribbean). There are three well-defined lineages within the genus that may be called subgenera. *Emblemaria* sensu stricto includes those species lacking the flag-like flap on the spinous dorsal fin, and with 13–14 pectoral-fin rays. This species group is basically Atlantic in distribution and includes six species, *atlantica*, *biocellata*, *culmenis*, *nivipes*, *pandionis*, and a new species from Belize and Barbados being described by A. R. Emery.

The second group is typified by *hypacanthus* and constitutes the subgenus *Psednoblennius*. It includes those forms with a flag-like flap on the spinous dorsal fin and with 13 pectoral-fin rays: *hudsoni*, *hypacanthus*, *piratica*, and *walkeri* from the American Pacific, and *diphyodontis* and *caycedoi* new species, from the southern Caribbean and adjacent waters. The last subgenus does not have an available name and may be called the *caldwelli* group of species. It is completely Atlantic in distribution and it is probably derived from *Emblemaria* s. s. Its apomorphic character is the presence of only two obvious segmented pelvic-fin rays and includes three species: *caldwelli*, *hyltoni*, and *piratula*.

KEY TO THE WESTERN ATLANTIC SPECIES OF *EMBLEMARIA*

- 1a. Third soft pelvic-fin ray vestigial (only two obvious segmented rays) 2
- 1b. Third soft pelvic-fin ray normal, usually $\frac{1}{4}$ – $\frac{1}{2}$ the length of the longest ray 4
- 2a. 13 pectoral-fin rays; 18–19 dorsal-fin spines *E. piratula*
- 2b. 14 pectoral-fin rays; 21–23 dorsal-fin spines 3
- 3a. Length of the first dorsal-fin spine in males exceeding two-thirds of the standard length *E. hyltoni*
- 3b. Length of the first dorsal-fin spine in males less than one-fifth of the standard length *E. caldwelli*
- 4a. A distinct flag-like flap on base of first dorsal-fin spine; 13 pectoral-fin rays 5
- 4b. No flag-like flap on base of first dorsal-fin spine; 13–14 pectoral-fin rays 6
- 5a. Palatine teeth partially biserial *E. diphyodontis*
- 5b. Palatine teeth in a single row *E. caycedoi* n. sp.
- 6a. A pair of obvious bony ridges on posterior half of interorbital *E. culmenis*
- 6b. No such ridges present 7
- 7a. Supraorbital cirrus distinctly banded, and much longer than orbit in males; pectoral-fin rays usually 14 *E. atlantica*
- 7b. Supraorbital cirrus never banded, similar or longer in length than the orbit in males; pectoral-fin rays almost always 13 8
- 8a. 10–12 teeth in a single row on palatine; supraorbital cirrus of males rarely longer than orbit *E. pandionis*
- 8b. 14–16 teeth in a single row on palatine; supraorbital cirrus of males almost two orbits in length *E. biocellata*

Emblemaria biocellata Stephens

E. biocellata Stephens 1970: 301–302, figs. 11 and 12 (type-locality: off Suriname, not French Guiana). Palacio 1974: 69–70 (Colombian specimen).

Diagnosis.—A species of *Emblemaria* lacking a flag-like flap on first dorsal-fin

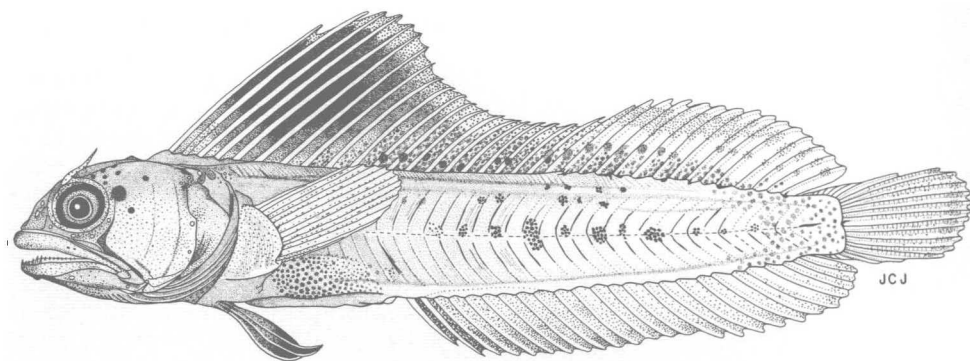


Figure 1. *Emblemaria caycedoi*, new species, INVEMAR-P 0747, paratype, 35.3 mm SL from Isla de Providencia (Colombia).

spine; third soft pelvic-fin ray normal; 13 pectoral-fin rays; without any obvious bony ridges on posterior half of interorbital; supraorbital cirrus of males not banded and almost two orbits in length; 14–16 teeth in a single row on palatine.

Distribution.—Known from three individuals, the female holotype from Suriname (not French Guiana), one specimen from Venezuela and the Colombian specimen collected near the border with Venezuela, off Cabo de la Vela.

Comments.—Stephens (1970) doubted the conspecificity of the holotype and the male specimen from Venezuela. The male Colombian specimen is very similar to the other male known, and they are undoubtedly conspecific. Also I consider that Stephens was right in describing the first two specimens as the same species. The distance between the Colombian locality (12°17'–18'N, 72°13.8'–15.0'W) and the one off Suriname (7°46'N, 54°17'W) is about 2,400 km, which may seem rather long (Stephens, 1970). The species has a relatively deep water habitat (>60 m) and as discussed by Collette and Rützler (1977), the deep water fauna front of the mouth of the Rio Amazonas is one of sponges and other organisms typical of hard bottoms. The most important bottom organisms near Cabo de la Vela are sponges (Palacio, 1974). Therefore, it is shown that the species inhabits the deep reefs off the north coast of South America and probably it would be collected more frequently if the appropriate habitat were sampled.

Material Examined.—A total of 1 specimen from 1 collection. Colombia, Cabo de la Vela: UMML 29861 (1).

Emblemaria caycedoi new species

Figure 1

E. diphodontis (not of Stephens and Cervigón) Palacio, 1974: 69 (misidentification, description erroneous).

E. pandionis (not of Evermann and Marsh) Palacio, 1974: 69 (misidentification, description erroneous).

Diagnosis.—A species of *Emblemaria* with 19–21 dorsal-fin spines, 14–15 soft dorsal-fin rays, 34–36 total dorsal-fin elements, 2 anal-fin spines, 22–23 soft anal-fin rays, 13 pectoral-fin rays; third soft pelvic-fin ray normal, 0.29–0.77 the length of the second longest ray; distinct flag-like flap on base of first dorsal-fin spine; palatine teeth in a single row; last dorsal-fin spine shorter than first soft dorsal-fin ray.

Description.—Based on holotype and 8 paratypes; meristic characters presented in Table 1; morphometric data in Table 2.

Body elongate, compressed, greatest depth under bases of 8th to 12th dorsal-fin spines. Head small, dorsal profile rising steeply and obliquely to anterodorsal margin of orbit, thereafter rising gently to dorsal-fin insertion. Snout short, dorsal surface with two parallel longitudinal bony ridges marking medial border of each nasal bone. Nasals separated by dorsomedial, shallow trough-like depression. Surface of head lacking spines, prominent sensory papillae and distinctive markings or ornamentation. Anterior nostril tubular, situated over anterior end of concavity containing nasal rosette; concavity bounded medially by nasal bone and laterally by anterior infraorbital bone. Posterior nostril porelike, well separated from anterior nostril, situated over posterior medial boundary of nasal concavity and just anterolateral to anterofrontal pore. Nasal cirrus elongate but simple, arising from distal margin of posterior wall of anterior nostril. Supraorbital cirrus elongate but simple, from almost twice to more than four times length of nasal cirrus, arising from above eye, just anterior to midpoint of dorsal margin. Tips of branchiostegal rays extending dorsally above opercle and nearly to dorsal-fin spines bases, separated by a vertical distance less than diameter of eye lens. Branchiostegal rays and membranes forming entire functional posterior border of gill covers.

Upper and lower jaws with fleshy, protuberant lips. Jaw teeth numerous, small apparently uniserial. Palatine teeth equal in size to all but anteriormost premaxillary teeth (which are slightly larger), uniserial, numbering 9 and 10 in largest male specimen from Providencia. Vomerine teeth exceedingly minute, difficult to see, numbering about 3 in same paratype.

Dorsal fin high and sail-like in males. First five dorsal-fin spines of approximately the same length. First dorsal-fin spine usually the longest, 23.4–34.7% SL. Second dorsal-fin spine usually second longest in length, its length 0.7–1.2 that of first. Fifth dorsal-fin spine 0.8–1.0 length of second, 0.6–1.1 length of first. Tenth dorsal-fin spine slightly longer than last dorsal-fin spine. Last dorsal-fin spine shortest, 0.2–0.4 length of first, and usually shorter than first dorsal-fin ray. Dorsal-fin soft rays approximately of same length, except last, which is shortest dorsal-fin element.

Dorsal fin of females lower than that of males. First dorsal-fin spine usually longest 8.9–14.8% SL. Second dorsal-fin spine usually second one in length, 0.9–1.2 that of first. Fifth dorsal-fin spine 0.8–1.0 length of second, 0.8–1.1 length of first. Last dorsal-fin spine shortest, 0.5–0.6 length of first, and shorter than first dorsal-fin ray.

Anal-fin spines invariably two, shorter and more slender than all soft anal-fin rays except last, which is shorter than second anal-fin spine. Membranes of both dorsal and anal fins slightly incised between successive elements, more pronounced in anal fin. Last rays of dorsal and anal fins attached by membrane to caudal peduncle.

Pectoral fins shorter than pelvic fins. Length of longest pelvic-fin ray 1.1–1.8 length of longest pectoral-fin ray. Depressed pectoral fin not reaching beyond a vertical through base of 12th dorsal-fin spine. Depressed pelvic fins not reaching to base of anal fin.

Pores.—Mandibular, 4; preopercular, 5; posttemporal, 4; supratemporal, 3; infraorbital, 6; supraorbital, 2; commissural, 3; anterofrontal, 1; nasal, 1.

Color in Alcohol.—Body pale brown to tan, generally covered with numerous fine melanophores, much more numerous on head and anterior trunk than on trunk

Table 1. Frequency distributions of dorsal, anal and pectoral fin-ray counts in the western Atlantic species of *Emblemaria*, based partially on Stephens (1963; 1970), Johnson and Greenfield (1976) and Greenfield and Johnson (1981)

Species	Dorsal-fin Spines										Soft Dorsal-fin Rays								Total Dorsal-fin Elements								Soft Anal-fin Rays					Pectoral-fin rays				
	18	19	20	21	22	23	13	14	15	16	17	33	34	35	36	37	38	20	21	22	23	24	12	13	14											
<i>atlantica</i>	—	—	—	4	18	—	—	5	14	3	—	—	—	—	6	15	1	—	2	8	11	—	—	—	4	15										
<i>biocellata</i>	—	—	—	—	3	—	—	1	2	—	—	—	—	—	1	2	—	—	—	2	1	—	—	—	3	—										
<i>caldwelli</i>	—	—	—	9	48	1	17	38	3	—	—	—	1	21	35	1	—	—	3	50	5	—	—	—	—	30										
<i>caycedoi</i>	—	1	3	5	—	—	—	4	5	—	—	—	1	7	1	—	—	—	—	8	1	—	—	—	9	—										
<i>culmenis</i>	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	1	—										
<i>diphyodontis</i>	—	1	8	7	—	—	—	1	8	7	—	—	—	5	10	1	—	—	—	1	14	1	—	—	16	—										
<i>hyltoni</i>	—	—	—	2	3	1	—	3	2	1	—	—	—	—	3	3	—	—	—	1	5	—	—	—	6	—										
<i>pandionis</i>	—	1	49	13	3	—	5	43	12	5	1	3	43	8	4	7	1	4	32	19	11	—	—	7*	113*	3*										
<i>piratula</i>	2	8	—	—	—	—	—	3	5	2	—	3	7	—	—	—	—	—	10	—	—	—	1	9	—											

• Both sides.

Table 2. Morphometric data of *Emblemaria caycedoi*. Values expressed as hundredths of SL, except SL and holotype measurements which are in mm. Values in parentheses are average measurements

Character	Holotype	Type Series	
		Males	Females
Number		5	3
Standard length	26.7	26.7–37.9	22.3–29.5
Head length	8.1	24–30 (27)	28–31 (29)
Head depth	4.9	18–21 (19)	17–19 (18)
Head width	5.3	14–20 (17)	17–20 (18)
Upper jaw length	3.8	11–16 (13)	15 (15)
Eye diameter	1.8	6–7 (7)	8–9 (8)
Snout length	0.9	2–3 (3)	3–4 (4)
Interorbital width	0.6	2–3 (3)	2–3 (3)
Predorsal length	5.1	16–24 (18)	19–21 (20)
Preanal length	13.1	47–49 (48)	48–50 (49)
Caudal peduncle depth	1.9	7–8 (7)	6–7 (7)
Caudal peduncle length	1.6	4–6 (5)	4–5 (5)
Pectoral length	5.1	16–20 (18)	18–19 (19)
Pelvic length	6.2	19–31 (24)	22–24 (23)
Length of 1st dorsal spine	6.4	23–35 (29)	9–15 (13)
Length of 2nd dorsal spine	7.4	24–31 (27)	11–14 (13)
Length of 5th dorsal spine	6.4	19–27 (23)	10–14 (11)
Length of last dorsal spine	2.5	5–11 (8)	7–9 (8)
Length of supraorbital cirrus	2.4	4–9 (6)	2–5 (3)
Length of nasal cirrus	0.6	1–4 (2)	1–2 (1)

posterior to anal-fin origin. Some melanophores concentrated into stripes at posterior border of preopercle and at base of caudal fin. Other melanophores concentrated into small blotches on posterior part of cheek and also along midline of body posterior to anal-fin base. First ten dorsal-fin spines black, some pigmentation on posterior part of anal fin. Pectoral fins pigmented only at bases of rays. Pelvic-fin membranes dark pigmented. Caudal-fin membrane almost unpigmented.

Distribution.—Known from Isla de Providencia (Colombia), and from Isla de Salamanca to Punta Cañón in the Colombian continental Caribbean.

Etymology.—The species is named in honor of the late Iván Enrique Caycedo Lara, the best of the Colombian young marine biologists, killed through ignorance.

Discussion.—The species is most closely related to the Venezuelan endemic *E. diphodontis* and to the majority of Pacific species, than to the rest of Atlantic forms. The new species differs from the other species of the subgenus *Psedno-blennius* in having only one row of palatine teeth, 22–23 soft anal-fin rays, and in the absence of bony tubercles on the snout. The species is therefore very similar to *E. hypacanthus*, a more slender species endemic to the Gulf of California. The head length of *hypacanthus* is 4.3–4.6 in SL (Stephens, 1963); in the new species the head is less than 4.1 in SL. Also, the membrane between the first three dorsal-fin spines is very deeply incised in *hypacanthus*, but not so in *caycedoi*. The new species is known from two relatively widely separated localities with somewhat different environments. The holotype and the female paratypes were collected in Isla de Providencia, as well as the paratype deposited in INVEMAR. This island has well-developed coral reefs with very clear oceanic water. I collected one of those paratypes in shallow water (1 m deep) over white sand in reef conditions.

On the other hand, the other paratypes were collected in the continental coast of the Colombian Caribbean. One of these specimens (UMML 30097) was fished between the mouths of the Río Magdalena and the Ciénaga Grande de Santa Marta, the largest river and the largest estuarine lagoon of the Colombian Caribbean.

Material Examined.—A total of 9 specimens from 4 collections. HOLOTYPE: UF 32669 (male, 26.7 mm) Isla de Providencia, Barrier Reef, 6 m, August 1971, C. R. Gilbert and party.

PARATYPES: Isla de Providencia: UF 25826 (4) taken with the holotype. INVEMAR-P 0747 (1) Crab Cay, 1.5 m, December 1980, A. Acero P. Isla de Salamanca (not Cabo de la Aguja, Palacio, 1974) UMML 30097 (1) 11°04'N, 74°30'–30.3'W, 18 m, 31 July 1968, R/V PILLSBURY 787. Punta Cañón (not Punta Canoa, Palacio, 1974) UMML 30147 (2) 12°20.2'–21.2'N, 71°55.1'–54.0'W, 11 m, 29 July 1968, R/V PILLSBURY 772.

Emblemaria diphyodontis Stephens and Cervigón

Emblemaria sp. Cervigón, 1966: 687–688 (description, coloration; habitat; distribution).

E. diphyodontis Stephens and Cervigón, in Stephens, 1970: 297–299, fig. 8 and 9 (type locality: Venezuela, Cabecera de Cubagua, not Cabecera de Cubago).

Caldwell and Caldwell (1964) reported *Blennius pilicornis* from Isla de Cubagua (Venezuela). Since only two species in what was commonly called *Blennius* (*Parablennius marmoreus* and *Scartella cristata*) are known from the Caribbean, those specimens were reexamined and I verified that they are *E. diphyodontis*. The two specimens are 36.9 and 43.4 mm SL and their counts are: 19 and 20 dorsal-fin spines, 16 and 15 soft dorsal-fin rays, 23 soft anal-fin rays, 13 pectoral-fin rays. *E. diphyodontis* has been incorrectly reported from Colombia (Palacio, 1974), but this record corresponds to *E. caycedoi*. *E. diphyodontis* is known only from Isla de Cubagua.

Material Examined.—A total of 3 specimens from 3 collections. Venezuela, Isla de Cubagua: LACM 20900 (1), 21035 (1); UDONECI 489 (1).

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